

TERA



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

December 27, 1979

Roger J. Mattson, Director  
Division of Systems Safety

Operating Experience Memorandum No. 23  
POTENTIAL OVERVOLTAGE CONDITION - OYSTER CREEK

Problem

An analysis conducted by Jersey Central Power and Light Company, pursuant to our letter of August 8, 1979, (Re: Adequacy of Station Electric Distribution System Voltages) showed that under certain conditions an overvoltage situation could exist on the 460 volt safety bus.

Analysis

In order for this event to occur, the Oyster Creek Station would be in the shutdown condition with a load of 2.5 MW or less on the startup transformer. A maximum grid voltage of 238 KV under these conditions would result in a voltage of 498 volts on the 460 volt bus. Safety related motors on this bus are rated at 440 volts + 10%; therefore, the voltage at the motor would be in excess of the 484 volt maximum. Although the motor would have excessive voltage on starting, the voltage would decrease to acceptable levels on startup of the safety loads due to resistive losses in the transformer.

Corrective Action

Standing Order No. 24 was issued on May 22, 1979, which requires the operator to maintain the 34.5 KV bus A and B potential voltages such that the instrument buses remain between 114V and 118V. This provides administrative control to assure that an overvoltage situation will be precluded. Furthermore, during the upcoming refueling outage, automatic voltage regulators will be installed on the startup transformers to automatically control the voltage within acceptable limits.

1793 155

8001240 502

Safety Significance

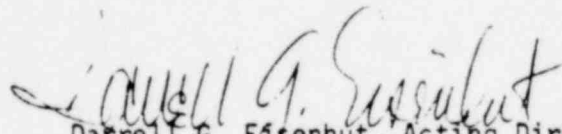
Safety related motors can normally operate continuously at a voltage of + 10% from the rated value. However, sustained overvoltage conditions at the safety bus could lead to degradation of the associated electrical components.

DOR Action

By letter dated August 8, 1979, DOR has requested all operating facilities to review their electric power systems and determine whether the offsite power system and the onsite distribution system is of sufficient capacity and capability to automatically start as well as operate all required safety loads if all onsite sources of AC power are not available. Licensees were requested to provide assurance that actions taken to assure adequate voltage levels for safety loads would not result in overvoltage conditions. DOR is looking at overvoltage problems as part of our ongoing evaluation of the adequacy of station electric systems.

Recommendations

DOR recommends that an assessment be made of the applicability of the corrective actions taken at Oyster Creek to those plants currently under licensing review. We also recommend more comprehensive enforcement, with regard to the overvoltage concern, included in the positions stated in Enclosure 1 (Staff Positions Relative to the Emergency Power Systems for Operating Reactors) to the June 3, 1977 letter sent to all licensees.

  
Darrell G. Eisenhut, Acting Director  
Division of Operating Reactors

## Contact:

R. Kendall, X28218

cc: H. Denton	J. Sniezek
E. Case	L. Nichols
D. Vassallo	G. Lainas
D. Muller	R. Satterfield
D. Eisenhut	F. Rosa
R. Tedesco	V. Thomas
E. Jordan	E. Wenzinger
DSS ADs	J.E. Knight
DOR ADs	D. Tonid
DOR BCs	R. Kendall
DOR SLs	PSB Section A